

REMARKS

In the Office Action, the Examiner rejected claims 9 and 15 under 35 U.S.C. § 112, as being indefinite. Applicant has amended the language of claim 9. Claim 9 makes it clear that the grain size refers to the diffusion disk and the resolution limit refers to the holographically generated structure.

The Examiner rejected claims 6-7 and 13-14 under 35 U.S.C. § 103, as being obvious over Biegen (US Patent No. 4869593) in view of Partlo (US Patent No. 5233460). Applicant respectfully traverses the rejection.

The present invention as claimed in claim 6 is directed to an **inspection** system during semiconductor manufacture such as inspection of masks (which contain the patterns to be transferred to semiconductor wafers) prior to the **image transfer process** (micro-lithography process) when the pattern on the mask is actually transferred to the wafer using the laser. In other words, while the present invention is directed to the inspection process, the Partlo system is directed to the transfer process which occurs after the inspection process.

Handwritten notes:
- "claim 14 only" with an arrow pointing to "image transfer process"
- "but just in pre-amb" with an arrow pointing to "inspection system"
- "None" written over "the pattern on the mask is actually transferred to the wafer using the laser."
- "Biegen" and "Partlo" written in boxes on the right margin, with arrows pointing to "inspection system" and "image transfer process" respectively.

As those skilled in the micro-lithography art will appreciate, the inspection process such as inspection of masks is quite different from the transfer process where the laser is used to transfer the pattern on the mask on to the wafers. This feature is recited in claim 6 as "microscope system for **inspection**" (emphasis added). To emphasize that the present invention is directed to an inspection system and not to an image transfer system (micro-lithography), Applicant has amended claim 6 to recite "a pulsed laser for **inspection** illumination, said **inspection** illumination being in the UV range" (emphasis added). None of the cited references either individually or in combination teaches an inspection system having a pulsed laser in the UV range and a diffusion disk recited in claim 6.

The Examiner primarily relies on the Biegen reference as teaching an inspection system for inspecting a test surface. However, the Biegen reference is directed to an interferometric surface profiler which is quite different from an imaging system for semiconductor inspection. Moreover, the Biegen reference obtains surface profiles of an optical surface rather than any semiconductor surface (see, for example, col. 1, lines 41-50). Thus, Biegen system is directed to a different field of application.

The Examiner cited Partlo as teaching the use of a pulsed laser light in the UV range. The Partlo reference, however, is directed to the transfer process (micro-lithography) and not to an inspection process as claimed (see col. 1, lines 5-18). As discussed above, the inspection process (inspection of masks, for example) is quite different from the transfer process

where the image on the mask is transferred onto the wafer. Thus, Partlo reference is directed to a different field of application.

Moreover, Partlo teaches away from using a known pulsed UV laser, even in the case of short coherence length laser (see col. 1, lines 29-30). Partlo also rules out the applicability of Excimer lasers (see col. 1, lines 19-34) where the inventor states that the Excimer lasers are not very well suited for the application. The Partlo system relates more to coherent lasers than pulsed lasers and shows a solution in controlling unwanted speckle effect (see col. 1, lines 32-33) rather than controlling intensity modulation of the laser profile as taught in the present invention.

Claim 13 has also been amended to emphasize that it is directed to an inspection system. Claim 13 now recites "a pulsed laser operable to generate an **inspection** illumination" (emphasis added).

Claim 14 has been amended to recite "a microscope system for **inspection of masks or processed wafers**" (Emphasis added). To be even more specific, claim 15 now recites "a microscope system for **inspection of masks prior to a micro-lithography process using the masks**" (emphasis added).

Applicant submits that dependent claims 7-11 and 16 are also patentable by virtue of their dependency from independent claim 6.

Based upon the above amendments and remarks, Applicant respectfully requests reconsideration of this application and its earlier allowance. Should the Examiner feel that a telephone conference with Applicant's attorney would expedite the prosecution of this application, the Examiner is urged to contact him at the number indicated below.

Respectfully submitted,

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